

Patent Application US/07/978,891

SEQUENCE LISTING

see pp. 1, 14 → 16

1
2
3
4 (1) GENERAL INFORMATION
5
6 (i) APPLICANT: Darrell Anderson, Nabil Hanna, John Leonard, Roland Newman and Mitchell R
7
8 (ii) TITLE OF INVENTION: THERAPEUTIC APPLICATION OF CHIMERIC ANTIBODY TO HUMAN B LYMPHOCY
9
10 (iii) NUMBER OF SEQUENCES: 8
11
12 (iv) CORRESPONDING ADDRESS:
13
14 (A) ADDRESSEE: IDEC Pharmaceuticals Corporation
15 (B) STREET: 11099 N. Torrey Pines Road, #160
16 (C) CITY: La Jolla
17 (D) STATE: California
18 (E) COUNTRY: USA
19 (F) ZIP: 92037
20
21 (v) COMPUTER READABLE FORM:
22
23 (A) MEDIUM TYPE: Diskette, 3.5 inch, 1.44 Mb
24 (B) COMPUTER: Macintosh
25 (C) OPERATING SYSTEM: MS.DOS
26 (D) SOFTWARE: Microsoft Word 5.0
27 *← insert ending parenthesis*
28 (vi) CURRENT APPLICATION DATA:
29
30 (A) APPLICATION NUMBER:
31 (B) FILING DATE:
32 (C) CLASSIFICATION:
33
34 (viii) ATTORNEY/AGENT INFORMATION:
35
36 (A) NAME: Burgoon, Richard P. Jr.
37 (B) REGISTRATION NUMBER: 34,787
38 (C) REFERENCE/DOCKET NUMBER:
39
40 (ix) TELECOMMUNICATION INFORMATION:
41
42 (A) TELEPHONE: (619) 458-0600
43 (B) TELEFAX: (619) 546-9274
44
45
46 (2) INFORMATION FOR SEQ. ID NO.: 1:
47
48 (i) SEQUENCE CHARACTERISTICS:
49
50 (A) LENGTH: 8540 bases
51 (B) TYPE: nucleic acid
52 (C) STRANDEDNESS: single

*Delete periods -
Edit this error
throughout the
remaining seq.
listings*

LINE ORIGINAL TEXT

CORRECTED TEXT

4 (1)GENERAL INFORMATION
12 (iv)CORRESPONDING ADDRESS:
46 (2)INFORMATION FOR SEQ. ID. NO.: 1:
61 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.:
351 (3)INFORMATION FOR SEQ. ID. NO.: 2:
366 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.:
677 (4)INFORMATION FOR SEQ. ID. NO.: 3:
692 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.:
698 (5)INFORMATION FOR SEQ. ID. NO.: 4:
713 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.:
719 (6)INFORMATION FOR SEQ. ID. NO.: 5:
734 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.:
754 (7)INFORMATION FOR SEQ. ID. NO.: 6:
769 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.:
777 (8)INFORMATION FOR SEQ. ID. NO.: 7:
792 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.:
797 (9)INFORMATION FOR SEQ. ID. NO.: 8:
812 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.:

(1) GENERAL INFORMATION:
(iv) CORRESPONDENCE ADDRESS:
(2) INFORMATION FOR SEQ ID NO: 1:
(ix) SEQUENCE DESCRIPTION: SEQ ID. NO:
(2) INFORMATION FOR SEQ ID NO: 2:
(ix) SEQUENCE DESCRIPTION: SEQ ID. NO:
(2) INFORMATION FOR SEQ ID NO: 3:
(ix) SEQUENCE DESCRIPTION: SEQ ID. NO:
(2) INFORMATION FOR SEQ ID NO: 4:
(ix) SEQUENCE DESCRIPTION: SEQ ID. NO:
(2) INFORMATION FOR SEQ ID NO: 5:
(ix) SEQUENCE DESCRIPTION: SEQ ID. NO:
(2) INFORMATION FOR SEQ ID NO: 6:
(ix) SEQUENCE DESCRIPTION: SEQ ID. NO:
(2) INFORMATION FOR SEQ ID NO: 7:
(ix) SEQUENCE DESCRIPTION: SEQ ID. NO:
(2) INFORMATION FOR SEQ ID NO: 8:
(ix) SEQUENCE DESCRIPTION: SEQ ID. NO:

PAGE: 1

SEQUENCE MISSING ITEM REPORT
PATENT APPLICATION US/07/978,891

DATE: 12/16/92
TIME: 09:46:26
S4267

MANDATORY IDENTIFIER THAT WAS NOT FOUND

CURRENT APPLICATION DATA
APPLICATION NUMBER
FILING DATE
CLASSIFICATION
PRIOR APPLICATION DATA
APPLICATION NUMBER
FILING DATE

PAGE: 1

SEQUENCE VERIFICATION REPORT
PATENT APPLICATION US/07/978,891

DATE: 12/16/92
TIME: 09:46:26
S4267

LINE ERROR

ORIGINAL TEXT

28 Response Exceeds Line Limitations
30 Unknown or Misplaced Identifier
31 Unknown or Misplaced Identifier
32 Unknown or Misplaced Identifier
695 Wrong Nucleic Acid Designator
692 Entered and Calc. Seq. Length differ
716 Wrong Nucleic Acid Designator
734 Entered and Calc. Seq. Length differ
772 Wrong Nucleic Acid Designator
794 Wrong Nucleic Acid Designator
792 Entered and Calc. Seq. Length differ
812 Entered and Calc. Seq. Length differ

(v) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER:

(B) FILING DATE:

(C) CLASSIFICATION:

TC 3' 2

(ix) SEQUENCE DESCRIPTION: SEQ. ID. NO.:

5' TGC AGC ATC CGT ACG TTT GAT TTC CAG C

(ix) SEQUENCE DESCRIPTION: SEQ. ID. NO.:

5' GCG GCT CCC ACG CGT GTC CTG TCC CAG 3

5' GG(G/C) TGT TGT GCT AGC TG(A/C) (A/G)

(ix) SEQUENCE DESCRIPTION: SEQ. ID. NO.:

(ix) SEQUENCE DESCRIPTION: SEQ. ID. NO.:

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53 (D)TOPOLOGY: circular
54
55 (ii)MOLECULE TYPE: DNA (genomic)
56
57 (iii)HYPOTHETICAL: yes
58
59 (iv)ANTI-SENSE: no
60
61 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.: 1:
62
63 GACGTCGCGG CCGCTCTAGG CCTCCAAAAA AGCCTCCTCA CTACTTCTGG AATAGCTCAG 60
64
65 AGGCCGAGGC GGCCTCGGCC TCTGCATAAA TAAAAAAAT TAGTCAGCCA TGCATGGGGC 120
66
67 GGAGAATGGG CGGAAGTGGG CGGAGTTAGG GCGGGGATGG GCGGAGTTAG GGGCGGGACT 180
68
69 ATGGTTGCTG ACTAATTGAG ATGCATGCTT TGCATACTTC TGCCTGCTGG GGAGCCTGGG 240
70
71 GACTTTCCAC ACCTGGTTGC TGAATAATTG AGATGCATGC TTTGCATACT TCTGCCTGCT 300
72
73 GGGGAGCCTG GGGACTTTCC ACACCCTAAC TGACACACAT TCCACAGAAT TAATCCCCT 360
74
75 AGTTATTAAT AGTAATCAAT TACGGGGTCA TTAGTTCATA GCCCATATAT GGAGTTCCGC 420
76
77 GTTACATAAC TTACGGTAAA TGGCCCGCCT GGCTGACCGC CCAACGACCC CCGCCATTG 480
78
79 ACGTCAATAA TGACGTATGT TCCCAGTAGT ACGCCAATAG GGACTTTCCA TTGACGTCAA 540
80
81 TGGGTGGACT ATTTACGGTA AACTGCCCAC TTGGCAGTAC ATCAAGTGTA TCATATGCCA 600
82
83 AGTACGCCCC CTATTGACGT CAATGACGGT AAATGGCCCG CCTGGCATTG TGCCCAGTAC 660
84
85 ATGACCTTAT GGGACTTTCC TACTTGGCAG TACATCTACG TATTAGTCAT CGCTATTACC 720
86
87 ATGGTGATGC GGTTTTGGCA GTACATCAAT GGGCGTGGAT AGCGGTTTGA CTCACGGGGA 780
88
89 TTTCCAAGTC TCCACCCCAT TGACGTCAAT GGGAGTTTGT TTTGGCACCA AAATCAACGG 840
90
91 GACTTTCCAA AATGTCGTAA CAACTCCGCC CCATTGACGC AAATGGGCGG TAGGCGTGTA 900
92
93 CGGTGGGAGG TCTATATAAG CAGAGCTGGG TACGTGAACC GTCAGATCGC CTGGAGACGC 960
94
95 CATCACAGAT CTCTACCAT GAGGGTCCCC GCTCAGCTCC TGGGGCTCCT GCTGCTCTGG 1020
96
97 CTCCCAGGTG CACGATGTGA TGGTACCAAG GTGGAAATCA AACGTACGGT GGCTGCACCA 1080
98
99 TCTGTCTTCA TCTTCCCGCC ATCTGATGAG CAGTTGAAAT CTGGAAGTGC CTCTGTTGTG 1140
100
101 TGCCTGCTGA ATAAGTCTTA TCCCAGAGAG GCCAAAGTAC AGTGAAGGT GGATAACGCC 1200
102
103 CTCCAATCGG GTAAGTCCCA GGAGAGTGTC ACAGAGCAGG ACAGCAAGGA CAGCACCTAC 1260
104

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|-----|------------|------------|------------|------------|-------------|------------|------|
| 105 | AGCCTCAGCA | GCACCCTGAC | GCTGAGCAAA | GCAGACTACG | AGAAACACAA | AGTCTACGCC | 1320 |
| 106 | | | | | | | |
| 107 | TGCGAAGTCA | CCCATCAGGG | CCTGAGCTCG | CCCGTCACAA | AGAGCTTCAA | CAGGGGAGAG | 1380 |
| 108 | | | | | | | |
| 109 | TGTTGAATTC | AGATCCGTTA | ACGGTTACCA | ACTACCTAGA | CTGGATTTCGT | GACAACATGC | 1440 |
| 110 | | | | | | | |
| 111 | GGCCGTGATA | TCTACGTATG | ATCAGCCTCG | ACTGTGCCTT | CTAGTTGCCA | GCCATCTGTT | 1500 |
| 112 | | | | | | | |
| 113 | GTTTGCCCTT | CCCCCGTGCC | TTCCTTGACC | CTGGAAGGTG | CCACTCCCAC | TGTCCTTTCC | 1560 |
| 114 | | | | | | | |
| 115 | TAATAAAATG | AGGAAATTGC | ATCGCATTGT | CTGAGTAGGT | GTCATTCTAT | TCTGGGGGGT | 1620 |
| 116 | | | | | | | |
| 117 | GGGGTGGGGC | AGGACAGCAA | GGGGGAGGAT | TGGGAAGACA | ATAGCAGGCA | TGCTGGGGAT | 1680 |
| 118 | | | | | | | |
| 119 | GCGGTGGGCT | CTATGGAACC | AGCTGGGGCT | CGACAGCTAT | GCCAAGTACG | CCCCCTATTG | 1740 |
| 120 | | | | | | | |
| 121 | ACGTCAATGA | CGGTAAATGG | CCCGCCTGGC | ATTATGCCCA | GTACATGACC | TTATGGGACT | 1800 |
| 122 | | | | | | | |
| 123 | TTCCTACTTG | GCAGTACATC | TACGTATTAG | TCATCGCTAT | TACCATGGTG | ATGCGGTTTT | 1860 |
| 124 | | | | | | | |
| 125 | GGCAGTACAT | CAATGGGCGT | GGATAGCGGT | TTGACTCAGC | GGGATTTCCA | AGTCTCCACC | 1920 |
| 126 | | | | | | | |
| 127 | CCATTGACGT | CAATGGGAGT | TTGTTTTGGC | ACCAAAATCA | ACGGGACTTT | CCAAAATGTC | 1980 |
| 128 | | | | | | | |
| 129 | GTAACAACTC | CGCCCCATTG | ACGCAAATGG | GCGGTAGGCG | TGTACGGTGG | GAGGTCTATA | 2040 |
| 130 | | | | | | | |
| 131 | TAAGCAGAGC | TGGGTACGTC | CTCACATTCA | GTGATCAGCA | CTGAACACAG | ACCCGTCGAC | 2100 |
| 132 | | | | | | | |
| 133 | ATGGGTGGA | GCCTCATCTT | GCTCTTCCTT | GTCGCTGTTG | CTACGCGTGT | CGCTAGCACC | 2160 |
| 134 | | | | | | | |
| 135 | AAGGGCCCAT | CGGTCTTCCC | CCTGGCACCC | TCCTCCAAGA | GCACCTCTGG | GGGCACAGCG | 2220 |
| 136 | | | | | | | |
| 137 | GCCCTGGGCT | GCCTGGTCAA | GGACTACTTC | CCCGAACCGG | TGACGGTGTC | GTGGAACCTA | 2280 |
| 138 | | | | | | | |
| 139 | GGCGCCCTGA | CCAGCGGCGT | GCACACCTTC | CCGGCTGTCC | TACAGTCCTC | AGGACTCTAC | 2340 |
| 140 | | | | | | | |
| 141 | TCCCTCAGCA | GCGTGGTGAC | CGTGCCCTCC | AGCAGCTTGG | GCACCCAGAC | CTACATCTGC | 2400 |
| 142 | | | | | | | |
| 143 | AACGTGAATC | ACAAGCCCAG | CAACACCAAG | GTGGACAAGA | AAGCAGAGCC | CAAATCTTGT | 2460 |
| 144 | | | | | | | |
| 145 | GACAAAACTC | ACACATGCCC | ACCGTGCCCA | GCACCTGAAC | TCCTGGGGGG | ACCGTCAGTC | 2520 |
| 146 | | | | | | | |
| 147 | TTCCTCTTCC | CCCCAAAACC | CAAGGACACC | CTCATGATCT | CCCGGACCCC | TGAGGTCACA | 2580 |
| 148 | | | | | | | |
| 149 | TGCGTGGTGG | TGGACGTGAG | CCACGAAGAC | CCTGAGGTCA | AGTTCAACTG | GTACGTGGAC | 2640 |
| 150 | | | | | | | |
| 151 | GGCGTGGAGG | TGCATAATGC | CAAGACAAAG | CCGCGGGAGG | AGCAGTACAA | CAGCACGTAC | 2700 |
| 152 | | | | | | | |
| 153 | CGTGTGGTCA | GCGTCCTCAC | CGTCCTGCAC | CAGGACTGGC | TGAATGGCAA | GGAGTACAAG | 2760 |
| 154 | | | | | | | |
| 155 | TGCAAGGTCT | CCAACAAAGC | CCTCCCAGCC | CCCATCGAGA | AAACCATCTC | CAAAGCCAAA | 2820 |
| 156 | | | | | | | |

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|-----|-------------|-------------|-------------|------------|------------|-------------|------|
| 157 | GGGCAGCCCC | GAGAACCACA | GGTGACACC | CTGCCCCCAT | CCCGGGATGA | GCTGACCAAG | 2880 |
| 158 | | | | | | | |
| 159 | AACCAGGTCA | GCCTGACCTG | CCTGGTCAAA | GGCTTCTATC | CCAGCGACAT | CGCCGTGGAG | 2940 |
| 160 | | | | | | | |
| 161 | TGGGAGAGCA | ATGGGCAGCC | GGAGAACAAC | TACAAGACCA | CGCCTCCCGT | GCTGGACTCC | 3000 |
| 162 | | | | | | | |
| 163 | GACGGCTCCT | TCTTCCTCTA | CAGCAAGCTC | ACCGTGGACA | AGAGCAGGTG | GCAGCAGGGG | 3060 |
| 164 | | | | | | | |
| 165 | AACGTCTTCT | CATGCTCCGT | GATGCATGAG | GCTCTGCACA | ACCACTACAC | GCAGAAGAGC | 3120 |
| 166 | | | | | | | |
| 167 | CTCTCCCTGT | CTCCGGGTAA | ATGAGGATCC | GTTAACGGTT | ACCAACTACC | TAGACTGGAT | 3180 |
| 168 | | | | | | | |
| 169 | TCGTGACAAC | ATGCGGCCGT | GATATCTACG | TATGATCAGC | CTCGACTGTG | CCTTCTAGTT | 3240 |
| 170 | | | | | | | |
| 171 | GCCAGCCATC | TGTTGTTTGC | CCCTCCCCCG | TGCCTTCCTT | GACCCTGGAA | GGTGCCACTC | 3300 |
| 172 | | | | | | | |
| 173 | CCACTGTCCT | TTCCTAATAA | AATGAGGAAA | TTGCATCGCA | TTGTCTGAGT | AGGTGTCATT | 3360 |
| 174 | | | | | | | |
| 175 | CTATTCTGGG | GGGTGGGGTG | GGGCAGGACA | GCAAGGGGGA | GGATTGGGAA | GACAATAGCA | 3420 |
| 176 | | | | | | | |
| 177 | GGCATGCTGG | GGATGCGGTG | GGCTCTATGG | AACCAGCTGG | GGCTCGACAG | CGCTGGATCT | 3480 |
| 178 | | | | | | | |
| 179 | CCCGATCCCC | AGCTTTGCTT | CTCAATTTCT | TATTTGCATA | ATGAGAAAAA | AAGGAAAATT | 3540 |
| 180 | | | | | | | |
| 181 | AATTTTAACA | CCAATTCAGT | AGTTGATTGA | GCAAATGCGT | TGCCAAAAAG | GATGCTTTAG | 3600 |
| 182 | | | | | | | |
| 183 | AGACAGTGTT | CTCTGCACAG | ATAAGGACAA | ACATTATTCA | GAGGGAGTAC | CCAGAGCTGA | 3660 |
| 184 | | | | | | | |
| 185 | GA CTCCTAAG | CCAGTGAGTG | GCACAGCATT | CTAGGGAGAA | ATATGCTTGT | CATCACC GAA | 3720 |
| 186 | | | | | | | |
| 187 | GCCTGATTCC | G TAGAGCCAC | ACCTTG GTAA | GGGCCAATCT | GCTCACACAG | GATAGAGAGG | 3780 |
| 188 | | | | | | | |
| 189 | GCAGGAGCCA | GGGCAGAGCA | TATAAGGTGA | GGTAGGATCA | GTTGCTCCTC | ACATTTGCTT | 3840 |
| 190 | | | | | | | |
| 191 | CTGACATAGT | TGTGTTGGGA | GCTTGGATAG | CTTGGACAGC | TCAGGGCTGC | GATTTGCGCG | 3900 |
| 192 | | | | | | | |
| 193 | CAAAC TTGAC | GGCAATCCTA | GCGTGAAGGC | TGGTAGGATT | TTATCCCCGC | TGCCATCATG | 3960 |
| 194 | | | | | | | |
| 195 | GTTTCGACCAT | TGAACTGCAT | CGTCGCCGTG | TCCCAAAATA | TGGGGATTGG | CAAGAACGGA | 4020 |
| 196 | | | | | | | |
| 197 | GACCTACCCT | GGCCTCCGCT | CAGGAACGAG | TTCAAGTACT | TCCAAAGAAT | GACCACAACC | 4080 |
| 198 | | | | | | | |
| 199 | TCTTCAGTGG | AAGGTAAACA | GAATCTGGTG | ATTATGGGTA | GGAAAACCTG | GTTCTCCATT | 4140 |
| 200 | | | | | | | |
| 201 | CCTGAGAAGA | ATCGACCTTT | AAAGGACAGA | ATTAATATAG | TTCTCAGTAG | AGAACTCAAA | 4200 |
| 202 | | | | | | | |
| 203 | GAACCACCAC | GAGGAGCTCA | TTTTCTTGCC | AAAAGTTTGG | ATGATGCCTT | AAGACTTATT | 4260 |
| 204 | | | | | | | |
| 205 | GAACAACCGG | AATTGGCAAG | TAAAGTAGAC | ATGGTTTGGG | TAGTCGGAGG | CAGTTCTGTT | 4320 |
| 206 | | | | | | | |
| 207 | TACCAGGAAG | CCATGAATCA | ACCAGGCCAC | CTTAGACTCT | TTGTGACAAG | GATCATGCAG | 4380 |
| 208 | | | | | | | |

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|-----|------------|------------|------------|------------|------------|------------|------|
| 209 | GAATTTGAAA | GTGACACGTT | TTTCCCAGAA | ATTGATTG | GGAAATATAA | ACTTCTCCCA | 4440 |
| 210 | | | | | | | |
| 211 | GAATACCCAG | GCGTCCTCTC | TGAGGTCCAG | GAGGAAAAAG | GCATCAAGTA | TAAGTTTGAA | 4500 |
| 212 | | | | | | | |
| 213 | GTCTACGAGA | AGAAAGACTA | ACAGGAAGAT | GCTTTCAGT | TCTCTGCTCC | CCTCCTAAAG | 4560 |
| 214 | | | | | | | |
| 215 | CTATGCATTT | TTATAAGACC | ATGGGACTTT | TGCTGGCTTT | AGATCAGCCT | CGACTGTGCC | 4620 |
| 216 | | | | | | | |
| 217 | TTCTAGTTGC | CAGCCATCTG | TTGTTTGCCC | CTCCCCCGTG | CCTTCCTTGA | CCCTGGAAGG | 4680 |
| 218 | | | | | | | |
| 219 | TGCCACTCCC | ACTGTCCTTT | CCTAATAAAA | TGAGGAAATT | GCATCGCATT | GTCTGAGTAG | 4740 |
| 220 | | | | | | | |
| 221 | GTGTCATTCT | ATTCTGGGGG | GTGGGGTGGG | GCAGGACAGC | AAGGGGGAGG | ATTGGGAAGA | 4800 |
| 222 | | | | | | | |
| 223 | CAATAGCAGG | CATGCTGGGG | ATGCGGTGGG | CTCTATGGAA | CCAGCTGGGG | CTCGAGCTAC | 4860 |
| 224 | | | | | | | |
| 225 | TAGCTTTGCT | TCTCAATTTT | TTATTTGCAT | AATGAGAAAA | AAAGGAAAAT | TAATTTTAAC | 4920 |
| 226 | | | | | | | |
| 227 | ACCAATTCAG | TAGTTGATTG | AGCAAATGCG | TTGCCAAAAA | GGATGCTTTA | GAGACAGTGT | 4980 |
| 228 | | | | | | | |
| 229 | TCTCTGCACA | GATAAGGACA | AACATTATTC | AGAGGGAGTA | CCCAGAGCTG | AGACTCCTAA | 5040 |
| 230 | | | | | | | |
| 231 | GCCAGTGAGT | GGCACAGCAT | TCTAGGGAGA | AATATGCTTG | TCATCACCGA | AGCCTGATTC | 5100 |
| 232 | | | | | | | |
| 233 | CGTAGAGCCA | CACCTTGGTA | AGGGCCAATC | TGCTCACACA | GGATAGAGAG | GGCAGGAGCC | 5160 |
| 234 | | | | | | | |
| 235 | AGGGCAGAGC | ATATAAGGTG | AGGTAGGATC | AGTTGCTCCT | CACATTTGCT | TCTGACATAG | 5220 |
| 236 | | | | | | | |
| 237 | TTGTGTTGGG | AGCTTGGATC | GATCCTCTAT | GGTTGAACAA | GATGGATTGC | ACGCAGGTTT | 5280 |
| 238 | | | | | | | |
| 239 | TCCGGCCGCT | TGGGTGGAGA | GGCTATTCGG | CTATGACTGG | GCACAACAGA | CAATCGGCTG | 5340 |
| 240 | | | | | | | |
| 241 | CTCTGATGCC | GCCGTGTTCC | GGCTGTCAGC | GCAGGGGCGC | CCGGTTCTTT | TTGTCAAGAC | 5400 |
| 242 | | | | | | | |
| 243 | CGACCTGTCC | GGTGCCCTGA | ATGAACTGCA | GGACGAGGCA | GCGCGGCTAT | CGTGGCTGGC | 5460 |
| 244 | | | | | | | |
| 245 | CACGACGGGC | GTTCTTGCG | CAGCTGTGCT | CGACGTTGTC | ACTGAAGCGG | GAAGGGACTG | 5520 |
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| 247 | GCTGCTATTG | GGCGAAGTGC | CGGGGCAGGA | TCTCCTGTCA | TCTCACCTTG | CTCCTGCCGA | 5580 |
| 248 | | | | | | | |
| 249 | GAAAGTATCC | ATCATGGCTG | ATGCAATGCG | GCGGCTGCAT | ACGCTTGATC | CGGCTACCTG | 5640 |
| 250 | | | | | | | |
| 251 | CCCATTGAC | CACCAAGCGA | AACATCGCAT | CGAGCGAGCA | CGTACTCGGA | TGGAAGCCGG | 5700 |
| 252 | | | | | | | |
| 253 | TCTTGTCGAT | CAGGATGATC | TGGACGAAGA | GCATCAGGGG | CTCGCGCCAG | CCGAAGTGT | 5760 |
| 254 | | | | | | | |
| 255 | CGCCAGGCTC | AAGGCGCGCA | TGCCCCGACG | CGAGGATCTC | GTCGTGACCC | ATGGCGATGC | 5820 |
| 256 | | | | | | | |
| 257 | CTGCTTGCCG | AATATCATGG | TGGAAAATGG | CCGCTTTTCT | GGATTCATCG | ACTGTGGCCG | 5880 |
| 258 | | | | | | | |
| 259 | GCTGGGTGTG | GCGGACCGCT | ATCAGGACAT | AGCGTTGGCT | ACCCGTGATA | TTGCTGAAGA | 5940 |
| 260 | | | | | | | |

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|-----|-------------|------------|------------|------------|------------|------------|------|
| 261 | GCTTGGCGGC | GAATGGGCTG | ACCGCTTCCT | CGTGCTTAC | GGTATCGCCG | CTCCCGATTC | 6000 |
| 262 | | | | | | | |
| 263 | GCAGCGCATC | GCCTTCTATC | GCCTTCTTGA | CGAGTTCTTC | TGAGCGGGAC | TCTGGGGTTC | 6060 |
| 264 | | | | | | | |
| 265 | GAAATGACCG | ACCAAGCGAC | GCCCAACCTG | CCATCACGAG | ATTTCGATTC | CACCGCCGCC | 6120 |
| 266 | | | | | | | |
| 267 | TTCTATGAAA | GGTTGGGCTT | CGGAATCGTT | TTCCGGGACG | CCGGCTGGAT | GATCCTCCAG | 6180 |
| 268 | | | | | | | |
| 269 | CGCGGGGATC | TCATGCTGGA | GTTCTTCGCC | CACCCCAACT | TGTTTATTGC | AGCTTATAAT | 6240 |
| 270 | | | | | | | |
| 271 | GGTTACAAAT | AAAGCAATAG | CATCACAAAT | TTCACAAATA | AAGCATTTTT | TTCACTGCAT | 6300 |
| 272 | | | | | | | |
| 273 | TCTAGTTGTG | GTTTGTCCAA | ACTCATCAAT | CTATCTTATC | ATGTCTGGAT | CGCGGCCGCG | 6360 |
| 274 | | | | | | | |
| 275 | ATCCCGTCGA | GAGCTTGGCG | TAATCATGGT | CATAGCTGTT | TCCTGTGTGA | AATTGTTATC | 6420 |
| 276 | | | | | | | |
| 277 | CGCTCACAAAT | TCCACACAAC | ATACGAGCCG | GAAGCATAAA | GTGTAAAGCC | TGGGGTGCCT | 6480 |
| 278 | | | | | | | |
| 279 | AATGAGTGAG | CTAACTCACA | TTAATTGCGT | TGCGCTCACT | GCCCGCTTTC | CAGTCGGGAA | 6540 |
| 280 | | | | | | | |
| 281 | ACCTGTCGTG | CCAGCTGCAT | TAATGAATCG | GCCAACGCGC | GGGGAGAGGC | GGTTTGCGTA | 6600 |
| 282 | | | | | | | |
| 283 | TTGGGCGCTC | TTCCGCTTCC | TCGCTCACTG | ACTCGCTGCG | CTCGGTCGTT | CGGCTGCGGC | 6660 |
| 284 | | | | | | | |
| 285 | GAGCGGTATC | AGCTCACTCA | AAGGCGGTAA | TACGGTTATC | CACAGAATCA | GGGGATAACG | 6720 |
| 286 | | | | | | | |
| 287 | CAGGAAAGAA | CATGTGAGCA | AAAGGCCAGC | AAAAGGCCAG | GAACCGTAAA | AAGGCCGCGT | 6780 |
| 288 | | | | | | | |
| 289 | TGCTGGCGTT | TTTCCATAGG | CTCCGCCCCC | CTGACGAGCA | TCACAAAAAT | CGACGCTCAA | 6840 |
| 290 | | | | | | | |
| 291 | GTCAGAGGTG | GCGAAACCCG | ACAGGACTAT | AAAGATACCA | GGCGTTTCCC | CCTGGAAGCT | 6900 |
| 292 | | | | | | | |
| 293 | CCCTCGTGCG | CTCTCCTGTT | CCGACCCTGC | CGCTTACCGG | ATACCTGTCC | GCCTTTCTCC | 6960 |
| 294 | | | | | | | |
| 295 | CTTCGGGAAG | CGTGGCGCTT | TCTCAATGCT | CACGCTGTAG | GTATCTCAGT | TCGGTGTAGG | 7020 |
| 296 | | | | | | | |
| 297 | TCGTTGCTC | CAAGCTGGGC | TGTGTGCACG | AACCCCCCGT | TCAGCCCGAC | CGCTGCGCCT | 7080 |
| 298 | | | | | | | |
| 299 | TATCCGGTAA | CTATCGTCTT | GAGTCCAACC | CGGTAAGACA | CGACTTATCG | CCACTGGCAG | 7140 |
| 300 | | | | | | | |
| 301 | CAGCCACTGG | TAACAGGATT | AGCAGAGCGA | GGTATGTAGG | CGGTGCTACA | GAGTTCTTGA | 7200 |
| 302 | | | | | | | |
| 303 | AGTGGTGGCC | TAACTACGGC | TACACTAGAA | GGACAGTATT | TGGTATCTGC | GCTCTGCTGA | 7260 |
| 304 | | | | | | | |
| 305 | AGCCAGTTAC | CTTCGGAAAA | AGAGTTGGTA | GCTCTTGATC | CGGCAAACAA | ACCACCGCTG | 7320 |
| 306 | | | | | | | |
| 307 | GTAGCGGTGG | TTTTTTTGT | TGCAAGCAGC | AGATTACGCG | CAGAAAAAAA | GGATCTCAAG | 7380 |
| 308 | | | | | | | |
| 309 | AAGATCCTTT | GATCTTTTCT | ACGGGGTCTG | ACGCTCAGTG | GAACGAAAAC | TCACGTTAAG | 7440 |
| 310 | | | | | | | |
| 311 | GGATTTTGGT | CATGAGATTA | TCAAAAAGGA | TCTTCACCTA | GATCCTTTTA | AATTAAAAAT | 7500 |
| 312 | | | | | | | |

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313 GAAGTTTAA ATCAATCTAA AGTATATATG AGTAAACTTG GTCTGACAGT TACCAATGCT 7560
314
315 TAATCAGTGA GGCACCTATC TCAGCGATCT GTCTATTTTCG TTCATCCATA GTTGCCTGAC 7620
316
317 TCCCCGTCGT GTAGATAACT ACGATACGGG AGGGCTTACC ATCTGGCCCC AGTGCTGCAA 7680
318
319 TGATACCGCG AGACCCACGC TCACCGGCTC CAGATTTATC AGCAATAAAC CAGCCAGCCG 7740
320
321 GAAGGGCCGA GCGCAGAAGT GGTCTGCAA CTTTATCCGC CTCCATCCAG TCTATTAATT 7800
322
323 GTTGCCGGGA AGCTAGAGTA AGTAGTTCGC CAGTTAATAG TTTGCGCAAC GTTGTTGCCA 7860
324
325 TTGCTACAGG CATCGTGGTG TCACGCTCGT CGTTTGGTAT GGCTTCATTC AGCTCCGGTT 7920
326
327 CCCAACGATC AAGGCGAGTT ACATGATCCC CCATGTTGTG CAAAAAGCG GTTAGCTCCT 7980
328
329 TCGGTCTCC GATCGTTGTC AGAAGTAAGT TGGCCGCAGT GTTATCACTC ATGGTTATGG 8040
330
331 CAGCACTGCA TAATTCTCTT ACTGTCATGC CATCCGTAAG ATGCTTTTCT GTGACTGGTG 8100
332
333 AGTACTCAAC CAAGTCATTC TGAGAATAGT GTATGCGGCG ACCGAGTTGC TCTTGCCCGG 8160
334
335 CGTCAATACG GGATAATACC GCGCCACATA GCAGAACTTT AAAAGTGCTC ATCATTGGAA 8220
336
337 AACGTTCTTC GGGGCGAAAA CTCTCAAGGA TCTTACCGCT GTTGAGATCC AGTTCGATGT 8280
338
339 AACCCACTCG TGCACCCAAC TGATCTTCAG CATCTTTTAC TTTCACCAGC GTTCTGGGT 8340
340
341 GAGCAAAAAC AGGAAGGCAA AATGCCGCAA AAAAGGGAAT AAGGGCGACA CGGAAATGTT 8400
342
343 GAATACTCAT ACTCTTCCTT TTTCAATATT ATTGAAGCAT TTATCAGGGT TATTGTCTCA 8460
344
345 TGAGCGGATA CATATTTGAA TGTATTTAGA AAAATAAACA AATAGGGGTT CCGCGCACAT 8520
346
347 TTCCCCGAAA AGTGCCACCT 8540
348
349
350

351 (3) INFORMATION FOR SEQ. ID. NO.: 2:

352

353 (i) SEQUENCE CHARACTERISTICS:

354

355 (A) LENGTH: 9209 bases

356 (B) TYPE: nucleic acid

357 (C) STRANDEDNESS: single

358 (D) TOPOLOGY: circular

359

360 (ii) MOLECULE TYPE: DNA (genomic)

361

362 (iii) HYPOTHETICAL: yes

363

364 (iv) ANTI-SENSE: no

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365
366 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.: 2:
367
368
369 GACGTCGCGG CCGCTCTAGG CCTCCAAAAA AGCCTCCTCA CTACTTCTGG AATAGCTCAG 60
370
371 AGGCCGAGGC GGCCTCGGCC TCTGCATAAA TAAAAAAAAT TAGTCAGCCA TGCATGGGGC 120
372
373 GGAGAATGGG CGGAAC TGGG CCGAGTTAGG GCGGGGATGG GCGGAGTTAG GGGCGGGACT 180
374
375 ATGGTTGCTG ACTAATTGAG ATGCATGCTT TGCATACTTC TGCCTGCTGG GGAGCCTGGG 240
376
377 GACTTTCCAC ACCTGGTTGC TGAATAATTG AGATGCATGC TTTGCATACT TCTGCCTGCT 300
378
379 GGGGAGCCTG GGGACTTTCC ACACCCTAAC TGACACACAT TCCACAGAAT TAATCCCCCT 360
380
381 AGTTATTAAT AGTAATCAAT TACGGGGTCA TTAGTTCATA GCCCATATAT GGAGTTCCGC 420
382
383 GTTACATAAC TTACGGTAAA TGGCCCGCCT GGCTGACCGC CCAACGACCC CCGCCCATTG 480
384
385 ACGTCAATAA TGACGTATGT TCCCATAGTA ACGCCAATAG GGACTTTCCA TTGACGTCAA 540
386
387 TGGGTGGACT ATTTACGGTA AACTGCCCAC TTGGCAGTAC ATCAAGTGTA TCATATGCCA 600
388
389 AGTACGCCCC CTATTGACGT CAATGACGGT AAATGGCCCG CCTGGCATTG TGCCCAGTAC 660
390
391 ATGACCTTAT GGGACTTTCC TACTTGGCAG TACATCTACG TATTAGTCAT CGCTATTACC 720
392
393 ATGGTGATGC GGTTTTGGCA GTACATCAAT GGGCGTGGAT AGCGGTTTGA CTCACGGGGA 780
394
395 TTTCCAAGTC TCCACCCCAT TGACGTCAAT GGGAGTTTGT TTTGGCACCA AAATCAACGG 840
396
397 GACTTTCCAA AATGTCGTAA CAACTCCGCC CCATTGACGC AAATGGGCGG TAGGCGTGTA 900
398
399 CGGTGGGAGG TCTATATAAG CAGAGCTGGG TACGTGAACC GTCAGATCGC CTGGAGACGC 960
400
401 CATCACAGAT CTCTCACTAT GGATTTTCAG GTGCAGATTA TCAGCTTCCT GCTAATCAGT 1020
402
403 GCTTCAGTCA TAATGTCCAG AGGACAAATT GTTCTCTCCC AGTCTCCAGC AATCCTGTCT 1080
404
405 GCATCTCCAG GGGAGAAGGT CACAATGACT TGCAGGGCCA GCTCAAGTGT AAGTTACATC 1140
406
407 CACTGGTTCC AGCAGAAGCC AGGATCCTCC CCCAAACCCT GGATTTATGC CACATCCAAC 1200
408
409 CTGGCTTCTG GAGTCCCTGT TCGCTTCAGT GGCAGTGGGT CTGGGACTTC TTA CTCTCTC 1260
410
411 ACAATCAGCA GAGTGGAGGC TGAAGATGCT GCCACTTATT ACTGCCAGCA GTGGACTAGT 1320
412
413 AACCACCCA CGTTCGGAGG GGGGACCAAG CTGGAAATCA AACGTACGGT GGCTGCACCA 1380
414
415 TCTGTCTTCA TCTTCCCGCC ATCTGATGAG CAGTTGAAAT CTGGAAGTGC CTCTGTTGTG 1440
416

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|-----|------------|-------------|------------|------------|-------------|------------|------|
| 417 | TGCCTGCTGA | ATAACTTCTA | TCCCAGAGAG | GCCAAAGTAC | AGTGGAAGGT | GGATAACGCC | 1500 |
| 418 | | | | | | | |
| 419 | CTCCAATCGG | GTAAC TCCCA | GGAGAGTGTC | ACAGAGCAGG | ACAGCAAGGA | CAGCACCTAC | 1560 |
| 420 | | | | | | | |
| 421 | AGCCTCAGCA | GCACCCTGAC | GCTGAGCAAA | GCAGACTACG | AGAAACACAA | AGTCTACGCC | 1620 |
| 422 | | | | | | | |
| 423 | TGCGAAGTCA | CCCATCAGGG | CCTGAGCTCG | CCCGTCACAA | AGAGCTTCAA | CAGGGGAGAG | 1680 |
| 424 | | | | | | | |
| 425 | TGTTGAATTC | AGATCCGTTA | ACGGTTACCA | ACTACCTAGA | CTGGATTTCGT | GACAACATGC | 1740 |
| 426 | | | | | | | |
| 427 | GGCCGTGATA | TCTACGTATG | ATCAGCCTCG | ACTGTGCCTT | CTAGTTGCCA | GCCATCTGTT | 1800 |
| 428 | | | | | | | |
| 429 | GTTTGCCCT | CCCCCGTGCC | TTCCTTGACC | CTGGAAGGTG | CCACTCCCAC | TGTCCTTTCC | 1860 |
| 430 | | | | | | | |
| 431 | TAATAAAATG | AGGAAATTGC | ATCGCATTGT | CTGAGTAGGT | GTCATTCTAT | TCTGGGGGGT | 1920 |
| 432 | | | | | | | |
| 433 | GGGGTGGGGC | AGGACAGCAA | GGGGGAGGAT | TGGGAAGACA | ATAGCAGGCA | TGCTGGGGAT | 1980 |
| 434 | | | | | | | |
| 435 | GCGGTGGGCT | CTATGGAACC | AGCTGGGGCT | CGACAGCTAT | GCCAAAGTACG | CCCCCTATTG | 2040 |
| 436 | | | | | | | |
| 437 | ACGTCAATGA | CGGTAAATGG | CCCGCCTGGC | ATTATGCCCA | GTACATGACC | TTATGGGACT | 2100 |
| 438 | | | | | | | |
| 439 | TTCCTACTTG | GCAGTACATC | TACGTATTAG | TCATCGCTAT | TACCATGGTG | ATGCGGTTTT | 2160 |
| 440 | | | | | | | |
| 441 | GGCAGTACAT | CAATGGGCGT | GGATAGCGGT | TTGACTCACG | GGGATTTCCA | AGTCTCCACC | 2220 |
| 442 | | | | | | | |
| 443 | CCATTGACGT | CAATGGGAGT | TTGTTTTGGC | ACCAAAATCA | ACGGGACTTT | CCAAAATGTC | 2280 |
| 444 | | | | | | | |
| 445 | GTAACAATC | CGCCCCATTG | ACGCAAATGG | GCGGTAGGCG | TGTACGGTGG | GAGGTCTATA | 2340 |
| 446 | | | | | | | |
| 447 | TAAGCAGAGC | TGGGTACGTC | CTCACATTCA | GTGATCAGCA | CTGAACACAG | ACCCGTCGAC | 2400 |
| 448 | | | | | | | |
| 449 | ATGGGTGGA | GCCTCATCTT | GCTCTTCCTT | GTCGCTGTTG | CTACGCGTGT | CCTGTCCCAG | 2460 |
| 450 | | | | | | | |
| 451 | GTACAATGC | AGCAGCCTGG | GGCTGAGCTG | GTGAAGCCTG | GGGCCTCAGT | GAAGATGTCC | 2520 |
| 452 | | | | | | | |
| 453 | TGCAAGGCTT | CTGGCTACAC | ATTTACCAGT | TACAATATGC | ACTGGGTAAA | ACAGACACCT | 2580 |
| 454 | | | | | | | |
| 455 | GGTCGGGGCC | TGGAATGGAT | TGGAGCTATT | TATCCCGGAA | ATGGTGATAC | TTCCTACAAT | 2640 |
| 456 | | | | | | | |
| 457 | CAGAAGTTCA | AAGGCAAGGC | CACATTGACT | GCAGACAAAT | CCTCCAGCAC | AGCCTACATG | 2700 |
| 458 | | | | | | | |
| 459 | CAGCTCAGCA | GCCTGACATC | TGAGGACTCT | GCGGTCTATT | ACTGTGCAAG | ATCGACTTAC | 2760 |
| 460 | | | | | | | |
| 461 | TACGGCGGTG | ACTGGTACTT | CAATGTCTGG | GGCGCAGGGA | CCACGGTCAC | CGTCTCTGCA | 2820 |
| 462 | | | | | | | |
| 463 | GCTAGCACCA | AGGGCCCATC | GGTCTTCCCC | CTGGCACCCT | CCTCCAAGAG | CACCTCTGGG | 2880 |
| 464 | | | | | | | |
| 465 | GGCACAGCGG | CCCTGGGCTG | CCTGGTCAAG | GACTACTTCC | CCGAACCGGT | GACGGTGTCG | 2940 |
| 466 | | | | | | | |
| 467 | TGGAACTCAG | GCGCCCTGAC | CAGCGGCGTG | CACACCTTCC | CGGCTGTCCT | ACAGTCCTCA | 3000 |
| 468 | | | | | | | |

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|-----|------------|-------------|-------------|------------|------------|------------|------|
| 469 | GGACTCTACT | CCCTCAGCAG | CGTGGTGACC | GTGCCCTCCA | GCAGCTTGGG | CACCCAGACC | 3060 |
| 470 | | | | | | | |
| 471 | TACATCTGCA | ACGTGAATCA | CAAGCCCAGC | AACACCAAGG | TGGACAAGAA | AGCAGAGCCC | 3120 |
| 472 | | | | | | | |
| 473 | AAATCTTGTG | ACAAAACCTCA | CACATGCCCCA | CCGTGCCCAG | CACCTGAACT | CCTGGGGGGA | 3180 |
| 474 | | | | | | | |
| 475 | CCGTCAGTCT | TCCTCTTCCC | CCCAAAAACCC | AAGGACACCC | TCATGATCTC | CCGGACCCCT | 3240 |
| 476 | | | | | | | |
| 477 | GAGGTCACAT | GCGTGGTGGT | GGACGTGAGC | CACGAAGACC | CTGAGGTCAA | GTTCAACTGG | 3300 |
| 478 | | | | | | | |
| 479 | TACGTGGACG | GCGTGGAGGT | GCATAATGCC | AAGACAAAGC | CGCGGGAGGA | GCAGTACAAC | 3360 |
| 480 | | | | | | | |
| 481 | AGCACGTACC | GTGTGGTCAG | CGTCCTCACC | GTCCTGCACC | AGGACTGGCT | GAATGGCAAG | 3420 |
| 482 | | | | | | | |
| 483 | GAGTACAAGT | GCAAGGTCTC | CAACAAAGCC | CTCCCAGCCC | CCATCGAGAA | AACCATCTCC | 3480 |
| 484 | | | | | | | |
| 485 | AAAGCCAAAG | GGCAGCCCCG | AGAACCACAG | GTGTACACCC | TGCCCCCATC | CCGGGATGAG | 3540 |
| 486 | | | | | | | |
| 487 | CTGACCAAGA | ACCAGGTCAG | CCTGACCTGC | CTGGTCAAAG | GCTTCTATCC | CAGCGACATC | 3600 |
| 488 | | | | | | | |
| 489 | GCCGTGGAGT | GGGAGAGCAA | TGGGCAGCCG | GAGAACAAC | ACAAGACCAC | GCCTCCCGTG | 3660 |
| 490 | | | | | | | |
| 491 | CTGGACTCCG | ACGGCTCCTT | CTTCCTCTAC | AGCAAGCTCA | CCGTGGACAA | GAGCAGGTGG | 3720 |
| 492 | | | | | | | |
| 493 | CAGCAGGGGA | ACGTCTTCTC | ATGCTCCGTG | ATGCATGAGG | CTCTGCACAA | CCACTACACG | 3780 |
| 494 | | | | | | | |
| 495 | CAGAAGAGCC | TCTCCCTGTC | TCCGGGTAAA | TGAGGATCCG | TTAACGGTTA | CCAACTACCT | 3840 |
| 496 | | | | | | | |
| 497 | AGACTGGATT | CGTGACAACA | TGCGGCCGTG | ATATCTACGT | ATGATCAGCC | TCGACTGTGC | 3900 |
| 498 | | | | | | | |
| 499 | CTTCTAGTTG | CCAGCCATCT | GTTGTTTGCC | CCTCCCCCGT | GCCTTCCTTG | ACCCTGGAAG | 3960 |
| 500 | | | | | | | |
| 501 | GTGCCACTCC | CACTGTCCCTT | TCCTAATAAA | ATGAGGAAAT | TGCATCGCAT | TGTCTGAGTA | 4020 |
| 502 | | | | | | | |
| 503 | GGTGTCAATC | TATTCTGGGG | GGTGGGGTGG | GGCAGGACAG | CAAGGGGGAG | GATTGGGAAG | 4080 |
| 504 | | | | | | | |
| 505 | ACAATAGCAG | GCATGCTGGG | GATGCGGTGG | GCTCTATGGA | ACCAGCTGGG | GCTCGACAGC | 4140 |
| 506 | | | | | | | |
| 507 | GCTGGATCTC | CCGATCCCCA | GCTTTGCTTC | TCAATTTCTT | ATTGTCATAA | TGAGAAAAAA | 4200 |
| 508 | | | | | | | |
| 509 | AGGAAAATTA | ATTTTAACAC | CAATTCAGTA | GTTGATTGAG | CAAATGCGTT | GCCAAAAGG | 4260 |
| 510 | | | | | | | |
| 511 | ATGCTTTAGA | GACAGTGTTT | TCTGCACAGA | TAAGGACAAA | CATTATTCAG | AGGGAGTACC | 4320 |
| 512 | | | | | | | |
| 513 | CAGAGCTGAG | ACTCCTAAGC | CAGTGAGTGG | CACAGCATTC | TAGGGAGAAA | TATGCTTGTC | 4380 |
| 514 | | | | | | | |
| 515 | ATCACCGAAG | CCTGATTCCG | TAGAGCCACA | CCTTGGTAAG | GGCCAATCTG | CTCACACAGG | 4440 |
| 516 | | | | | | | |
| 517 | ATAGAGAGGG | CAGGAGCCAG | GGCAGAGCAT | ATAAGGTGAG | GTAGGATCAG | TTGCTCCTCA | 4500 |
| 518 | | | | | | | |
| 519 | CATTTGCTTC | TGACATAGTT | GTGTTGGGAG | CTTGGATAGC | TTGGACAGCT | CAGGGCTGCG | 4560 |
| 520 | | | | | | | |

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|-----|------------|------------|------------|------------|------------|------------|------|
| 521 | ATTTCGCGCC | AAACTTGACG | GCAATCCTAG | CGTGAAGGCT | GGTAGGATT | TATCCCCGCT | 4620 |
| 522 | | | | | | | |
| 523 | GCCATCATGG | TTCGACCATT | GAAGTGCATC | GTCGCCGTGT | CCCAAAATAT | GGGGATTGGC | 4680 |
| 524 | | | | | | | |
| 525 | AAGAACGGAG | ACCTACCCTG | GCCTCCGCTC | AGGAACGAGT | TCAAGTACTT | CCTAAGAATG | 4740 |
| 526 | | | | | | | |
| 527 | ACCACAACCT | CTTCAGTGGA | AGGTAAACAG | AATCTGGTGA | TTATGGGTAG | GAAAACCTGG | 4800 |
| 528 | | | | | | | |
| 529 | TTCTCCATTC | CTGAGAAGAA | TCGACCTTTA | AAGGACAGAA | TTAATATAGT | TCTCAGTAGA | 4860 |
| 530 | | | | | | | |
| 531 | GAAGTCAAAG | AACCACCACG | AGGAGCTCAT | TTTCTTGCCA | AAAGTTTGGA | TGATGCCTTA | 4920 |
| 532 | | | | | | | |
| 533 | AGACTTATTG | AACAACCGGA | ATTGGCAAGT | AAAGTAGACA | TGGTTTGGAT | AGTCGGAGGC | 4980 |
| 534 | | | | | | | |
| 535 | AGTTCTGTTT | ACCAGGAAGC | CATGAATCAA | CCAGGCCACC | TTAGACTCTT | TGTGACAAGG | 5040 |
| 536 | | | | | | | |
| 537 | ATCATGCAGG | AATTTGAAAG | TGACACGTTT | TTCCAGAGAA | TTGATTGTTG | GAAATATAAA | 5100 |
| 538 | | | | | | | |
| 539 | CTTCTCCAG | AATACCCAGG | CGTCCTCTCT | GAGGTCCAGG | AGGAAAAAGG | CATCAAGTAT | 5160 |
| 540 | | | | | | | |
| 541 | AAGTTTGAAG | TCTACGAGAA | GAAAGACTAA | CAGGAAGATG | CTTCAAGTT | CTCTGCTCCC | 5220 |
| 542 | | | | | | | |
| 543 | CTCCTAAAGC | TATGCATTTT | TATAAGACCA | TGGGACTTTT | GCTGGCTTTA | GATCAGCCTC | 5280 |
| 544 | | | | | | | |
| 545 | GACTGTGCCT | TCTAGTTGCC | AGCCATCTGT | TGTTTGCCCC | TCCCCCGTGC | CTTCCTTGAC | 5340 |
| 546 | | | | | | | |
| 547 | CCTGGAAGGT | GCCACTCCCA | CTGTCCTTTC | CTAATAAAAT | GAGGAAATTG | CATCGCATTG | 5400 |
| 548 | | | | | | | |
| 549 | TCTGAGTAGG | TGTCATTCTA | TTCTGGGGGG | TGGGGTGGGG | CAGGACAGCA | AGGGGGAGGA | 5460 |
| 550 | | | | | | | |
| 551 | TTGGGAAGAC | AATAGCAGGC | ATGCTGGGGA | TGCGGTGGGC | TCTATGGAAC | CAGCTGGGGC | 5520 |
| 552 | | | | | | | |
| 553 | TCGAGCTACT | AGCTTTGCTT | CTCAATTTCT | TATTTGCATA | ATGAGAAAAA | AAGGAAAATT | 5580 |
| 554 | | | | | | | |
| 555 | AATTTTAACA | CCAATTCAGT | AGTTGATTGA | GCAAATGCGT | TGCCAAAAAG | GATGCTTTAG | 5640 |
| 556 | | | | | | | |
| 557 | AGACAGTGTT | CTCTGCACAG | ATAAGGACAA | ACATTATTCA | GAGGGAGTAC | CCAGAGCTGA | 5700 |
| 558 | | | | | | | |
| 559 | GACTCCTAAG | CCAGTGAGTG | GCACAGCATT | CTAGGGAGAA | ATATGCTTGT | CATCACCAGG | 5760 |
| 560 | | | | | | | |
| 561 | GCCTGATTCC | GTAGAGCCAC | ACCTTGGTAA | GGGCCAATCT | GCTCACACAG | GATAGAGAGG | 5820 |
| 562 | | | | | | | |
| 563 | GCAGGAGCCA | GGGCAGAGCA | TATAAGGTGA | GGTAGGATCA | GTTGCTCCTC | ACATTTGCTT | 5880 |
| 564 | | | | | | | |
| 565 | CTGACATAGT | TGTGTTGGGA | GCTTGGATCG | ATCCTCTATG | GTTGAACAAG | ATGGATTGCA | 5940 |
| 566 | | | | | | | |
| 567 | CGCAGGTTCT | CCGGCCGCTT | GGGTGGAGAG | GCTATTCGGC | TATGACTGGG | CACAACAGAC | 6000 |
| 568 | | | | | | | |
| 569 | AATCGGCTGC | TCTGATGCCG | CCGTGTTCCG | GCTGTCAGCG | CAGGGGCGCC | CGGTTCTTTT | 6060 |
| 570 | | | | | | | |
| 571 | TGTCAAGACC | GACCTGTCCG | GTGCCCTGAA | TGAACTGCAG | GACGAGGCAG | CGCGGCTATC | 6120 |
| 572 | | | | | | | |

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|-----|------------|-------------|------------|-------------|------------|------------|------|
| 573 | GTGGCTGGCC | ACGACGGGCG | TTCCTTGCGC | AGCTGTGCTC | GACGTTGTCA | CTGAAGCGGG | 6180 |
| 574 | | | | | | | |
| 575 | AAGGGACTGG | CTGCTATTGG | GCGAAGTGCC | GGGGCAGGAT | CTCCTGTCAT | CTCACCTTGC | 6240 |
| 576 | | | | | | | |
| 577 | TCCTGCCGAG | AAAGTATCCA | TCATGGCTGA | TGCAATGCGG | CGGCTGCATA | CGCTTGATCC | 6300 |
| 578 | | | | | | | |
| 579 | GGCTACCTGC | CCATTGACC | ACCAAGCGAA | ACATCGCATC | GAGCGAGCAC | GTACTCGGAT | 6360 |
| 580 | | | | | | | |
| 581 | GGAAGCCGGT | CTTGTCGATC | AGGATGATCT | GGACGAAGAG | CATCAGGGGC | TCGCGCCAGC | 6420 |
| 582 | | | | | | | |
| 583 | CGAACTGTTC | GCCAGGCTCA | AGGCGCGCAT | GCCCCGACGGC | GAGGATCTCG | TCGTGACCCA | 6480 |
| 584 | | | | | | | |
| 585 | TGGCGATGCC | TGCTTGCCGA | ATATCATGGT | GGAAAATGGC | CGCTTTTCTG | GATTCATCGA | 6540 |
| 586 | | | | | | | |
| 587 | CTGTGGCCGG | CTGGGTGTGG | CGGACCGCTA | TCAGGACATA | GCGTTGGCTA | CCCGTGATAT | 6600 |
| 588 | | | | | | | |
| 589 | TGCTGAAGAG | CTTGGCGGCG | AATGGGCTGA | CCGCTTCCTC | GTGCTTTACG | GTATCGCCGC | 6660 |
| 590 | | | | | | | |
| 591 | TCCCGATTCT | CAGCGCATCG | CCTTCTATCG | CCTTCTTGAC | GAGTTCTTCT | GAGCGGGACT | 6720 |
| 592 | | | | | | | |
| 593 | CTGGGGTTCT | AAATGACCGA | CCAAGCGACG | CCCAACCTGC | CATCACGAGA | TTTCGATTCC | 6780 |
| 594 | | | | | | | |
| 595 | ACCGCCGCCT | TCTATGAAAG | GTTGGGCTTC | GGAATCGTTT | TCCGGGACGC | CGGCTGGATG | 6840 |
| 596 | | | | | | | |
| 597 | ATCCTCCAGC | GCGGGGATCT | CATGCTGGAG | TTCTTCGCCC | ACCCCAACTT | GTTTATTGCA | 6900 |
| 598 | | | | | | | |
| 599 | GCTTATAATG | GTTACAAATA | AAGCAATAGC | ATCACAAATT | TCACAAATAA | AGCATTTTTT | 6960 |
| 600 | | | | | | | |
| 601 | TCACTGCATT | CTAGTTGTGG | TTTGTCCAAA | CTCATCAATC | TATCTTATCA | TGTCTGGATC | 7020 |
| 602 | | | | | | | |
| 603 | GCGGCCGCGA | TCCCGTCGAG | AGCTTGCGCT | AATCATGGTC | ATAGCTGTTT | CCTGTGTGAA | 7080 |
| 604 | | | | | | | |
| 605 | ATTGTTATCC | GCTCACAATT | CCACACAACA | TACGAGCCGG | AAGCATAAAG | TGTAAAGCCT | 7140 |
| 606 | | | | | | | |
| 607 | GGGGTGCCTA | ATGAGTGAGC | TAATCAGCAT | TAATTGCGTT | GCGCTCACTG | CCCGCTTTCC | 7200 |
| 608 | | | | | | | |
| 609 | AGTCGGGAAA | CCTGTCGTGC | CAGCTGCATT | AATGAATCGG | CCAACGCGCG | GGGAGAGGCG | 7260 |
| 610 | | | | | | | |
| 611 | GTTTGCGTAT | TGGGCGCTCT | TCCGCTTCCT | CGCTCACTGA | CTCGCTGCGC | TCGGTCGTTC | 7320 |
| 612 | | | | | | | |
| 613 | GGCTGCGGCG | AGCGGTATCA | GCTCACTCAA | AGGCGGTAAT | ACGGTTATCC | ACAGAATCAG | 7380 |
| 614 | | | | | | | |
| 615 | GGGATAACGC | AGGAAAGAAC | ATGTGAGCAA | AAGGCCAGCA | AAAGGCCAGG | AACCGTAAAA | 7440 |
| 616 | | | | | | | |
| 617 | AGGCCGCGTT | GCTGGCGTTT | TTCCATAGGC | TCCGCCCCCC | TGACGAGCAT | CACAAAAATC | 7500 |
| 618 | | | | | | | |
| 619 | GACGCTCAAG | TCAGAGGTGG | CGAAACCCGA | CAGGACTATA | AAGATACCAG | GCGTTTCCCC | 7560 |
| 620 | | | | | | | |
| 621 | CTGGAAGCTC | CCTCGTGCGC | TCTCCTGTTC | CGACCCTGCC | GCTTACCGGA | TACCTGTCCG | 7620 |
| 622 | | | | | | | |
| 623 | CCTTTCTCCC | TTCCGGGAAGC | GTGGCGCTTT | CTCAATGCTC | ACGCTGTAGG | TATCTCAGTT | 7680 |
| 624 | | | | | | | |

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|-----|------------|------------|------------|------------|-------------|------------|------|
| 625 | CGGTGTAGGT | CGTTCGCTCC | AAGCTGGGCT | GTGTGCACGA | ACCCCCCGTT | CAGCCCGACC | 7740 |
| 626 | | | | | | | |
| 627 | GCTGCGCCTT | ATCCGGTAAC | TATCGTCTTG | AGTCCAACCC | GGTAAGACAC | GACTTATCGC | 7800 |
| 628 | | | | | | | |
| 629 | CACTGGCAGC | AGCCACTGGT | AACAGGATTA | GCAGAGCGAG | GTATGTAGGC | GGTGCTACAG | 7860 |
| 630 | | | | | | | |
| 631 | AGTTCTTGAA | GTGGTGGCCT | AACTACGGCT | ACACTAGAAG | GACAGTATTT | GGTATCTGCG | 7920 |
| 632 | | | | | | | |
| 633 | CTCTGCTGAA | GCCAGTTACC | TTCGGAAAAA | GAGTTGGTAG | CTCTTGATCC | GGCAAACAAA | 7980 |
| 634 | | | | | | | |
| 635 | CCACCGCTGG | TAGCGGTGGT | TTTTTTGTTT | GCAAGCAGCA | GATTACGCGC | AGAAAAAAG | 8040 |
| 636 | | | | | | | |
| 637 | GATCTCAAGA | AGATCCTTTG | ATCTTTTCTA | CGGGGTCTGA | CGCTCAGTGG | AACGAAAAC | 8100 |
| 638 | | | | | | | |
| 639 | CACGTTAAGG | GATTTTGGTC | ATGAGATTAT | CAAAAAGGAT | CTTCACCTAG | ATCCTTTTAA | 8160 |
| 640 | | | | | | | |
| 641 | ATTAAAAATG | AAGTTTTAAA | TCAATCTAAA | GTATATATGA | GTAAACTTGG | TCTGACAGTT | 8220 |
| 642 | | | | | | | |
| 643 | ACCAATGCTT | AATCAGTGAG | GCACCTATCT | CAGCGATCTG | TCTATTTTCGT | TCATCCATAG | 8280 |
| 644 | | | | | | | |
| 645 | TTGCCTGACT | CCCCGTCGTG | TAGATAACTA | CGATACGGGA | GGGCTTACCA | TCTGGCCCCA | 8340 |
| 646 | | | | | | | |
| 647 | GTGCTGCAAT | GATACCGCGA | GACCCACGCT | CACCGGCTCC | AGATTTATCA | GCAATAAACC | 8400 |
| 648 | | | | | | | |
| 649 | AGCCAGCCGG | AAGGGCCGAG | CGCAGAAAGT | GTCCTGCAAC | TTTATCCGCC | TCCATCCAGT | 8460 |
| 650 | | | | | | | |
| 651 | CTATTAATTG | TTGCCGGGAA | GCTAGAGTAA | GTAGTTCGCC | AGTTAATAGT | TTGCGCAACG | 8520 |
| 652 | | | | | | | |
| 653 | TTGTTGCCAT | TGCTACAGGC | ATCGTGGTGT | CACGCTCGTC | GTTTGGTATG | GCTTCATTCA | 8580 |
| 654 | | | | | | | |
| 655 | GCTCCGGTTC | CCAACGATCA | AGGCGAGTTA | CATGATCCCC | CATGTTGTGC | AAAAAAGCGG | 8640 |
| 656 | | | | | | | |
| 657 | TTAGCTCCTT | CGGTCCTCCG | ATCGTTGTCA | GAAGTAAGTT | GGCCGCAGTG | TTATCACTCA | 8700 |
| 658 | | | | | | | |
| 659 | TGGTTATGGC | AGCACTGCAT | AATTCTCTTA | CTGTCATGCC | ATCCGTAAGA | TGCTTTTCTG | 8760 |
| 660 | | | | | | | |
| 661 | TGACTGGTGA | GTACTCAACC | AAGTCATTCT | GAGAATAGTG | TATGCGGCGA | CCGAGTTGCT | 8820 |
| 662 | | | | | | | |
| 663 | CTTGCCCGGC | GTCAATACGG | GATAATACCG | CGCCACATAG | CAGAACTTTA | AAAGTGCTCA | 8880 |
| 664 | | | | | | | |
| 665 | TCATTGGAAG | ACGTTCTTCG | GGGCGAAAAC | TCTCAAGGAT | CTTACCGCTG | TTGAGATCCA | 8940 |
| 666 | | | | | | | |
| 667 | GTTTCGATGA | ACCCACTCGT | GCACCCAACT | GATCTTCAGC | ATCTTTTACT | TTCACCAGCG | 9000 |
| 668 | | | | | | | |
| 669 | TTTCTGGGTG | AGCAAAAACA | GGAAGGCAAA | ATGCCGCAAA | AAAGGGAATA | AGGGCGACAC | 9060 |
| 670 | | | | | | | |
| 671 | GGAAATGTTG | AATACTCATA | CTCTTCCTTT | TTCAATATTA | TTGAAGCATT | TATCAGGGTT | 9120 |
| 672 | | | | | | | |
| 673 | ATTGTCTCAT | GAGCGGATAC | ATATTTGAAT | GTATTTAGAA | AAATAAACAA | ATAGGGGTTC | 9180 |
| 674 | | | | | | | |
| 675 | CGCGCACATT | TCCCCGAAAA | GTGCCACCT | | | | 9209 |
| 676 | | | | | | | |

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677 (4)INFORMATION FOR SEQ. ID. NO.: 3:

678

679 (i)SEQUENCE CHARACTERISTICS:

680

681 (A)LENGTH: 54 bases

682 (B)TYPE: nucleic acid

683 (C)STRANDEDNESS: single

684 (D)TOPOLOGY: linear

685

686 (ii)MOLECULE TYPE: DNA (genomic)

687

688 (iii)HYPOTHETICAL: yes

689

690 (iv)ANTI-SENSE: no

691

692 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.: 3:

693

694 5' ATC ACA GAT CTC TCA CCA TGG ATT TTC AGG TBC AGA TTA TCA GCT52

695 TC 3' 2' *invalid* *This number needs to be 54.*

696

697

698 (5)INFORMATION FOR SEQ. ID. NO.: 4:

699

700 (i)SEQUENCE CHARACTERISTICS:

701

702 (A)LENGTH: 30 bases

703 (B)TYPE: nucleic acid

704 (C)STRANDEDNESS: single

705 (D)TOPOLOGY: linear

706

707 (ii)MOLECULE TYPE: DNA (genomic)

708

709 (iii)HYPOTHETICAL: yes

710

711 (iv)ANTI-SENSE: yes — *the above anti-sense is "no". Please verify these responses. PTO assumes that*

713 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.: 4:

714

715

716 5' TGC AGC ATC CGT ACG TTT GAT TTC CAG CTT 3' BO

717

718

719 (6)INFORMATION FOR SEQ. ID. NO.: 5:

720

721 (i)SEQUENCE CHARACTERISTICS:

722

723 (A)LENGTH: 384 bases

724 (B)TYPE: nucleic acid

725 (C)STRANDEDNESS: single

726 (D)TOPOLOGY: linear

727

728 (ii)MOLECULE TYPE: DNA (genomic)

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729
730 (iii)HYPOTHETICAL: yes
731
732 (iv)ANTI-SENSE: no
733
734 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.: 5:
735
736
737 ATG GAT TTT CAG GTG CAG ATT ATC AGC TTC CTG CTA ATC AGT GCT TCA GTC 51
738
739 ATA ATG TCC AGA GGG CAA ATT GTT CTC TCC CAG TCT CCA GCA ATC CTG TCT102
740
741 GCA TCT CCA GGG GAG AAG GTC ACA ATG ACT TGC AGG GCC AGC TCA AGT GTA153
742
743 AGT TAC ATC CAC TGG TTC CAG CAG AAG CCA GGA TCC TCC CCC AAA CCC TGG204
744
745 ATT TAT GCC ACA TCC AAC CTG GCT TCT GGA GTC CCT GTT CGC TTC AGT GGC255
746
747 AGT GGG TCT GGG ACT TCT TAC TCT CTC ACA ATC AGC AGA GTG GAG GCT GAR306
748
749 GAT GCT GCC ACT TAT TAC TGC CAG CAG TGG ACT AGT AAC CCA CCC ACG TTC357
750
751 GGA GGG GGG ACC AAG CTG GAA ATC AAA384
752
753

754 (7)INFORMATION FOR SEQ. ID. NO.: 6:
755

756 (i)SEQUENCE CHARACTERISTICS:
757

758 (A)LENGTH: 27 bases
759 (B)TYPE: nucleic acid
760 (C)STRANDEDNESS: single
761 (D)TOPOLOGY: linear
762

763 (ii)MOLECULE TYPE: DNA (genomic)
764

765 (iii)HYPOTHETICAL: yes
766

767 (iv)ANTI-SENSE: no
768

769 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.: 6:
770

771
772 5' GCG GCT CCC ACG CGT GTC CTG TCC CAG 3'27
773
774
775
776

777 (8)INFORMATION FOR SEQ. ID. NO.: 7:
778

779 (i)SEQUENCE CHARACTERISTICS:
780

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781 (A)LENGTH: 29 bases
782 (B)TYPE: nucleic acid
783 (C)STRANDEDNESS: single
784 (D)TOPOLOGY: linear
785
786 (ii)MOLECULE TYPE: DNA (genomic)
787
788 (iii)HYPOTHETICAL: yes
789
790 (iv)ANTI-SENSE: yes
791
792 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.: 7:
793
794 5' GG(G/C) TGT TGT GCT AGC TG(A/C) (A/G)GA GAC (G/A)GT GA(3)29

795
796 use "N" and define the alternatives in the feature
797 (9)INFORMATION FOR SEQ. ID. NO.: 8:
798

799 (i)SEQUENCE CHARACTERISTICS:
800

801 (A)LENGTH: 420 bases
802 (B)TYPE: nucleic acid
803 (C)STRANDEDNESS: single
804 (D)TOPOLOGY: linear
805

806 (ii)MOLECULE TYPE: DNA (genomic)
807

808 (iii)HYPOTHETICAL: yes
809

810 (iv)ANTI-SENSE: no
811

812 (ix)SEQUENCE DESCRIPTION: SEQ. ID. NO.: 8:
813

814
815 ATG GGT TGG AGC CTC ATC TTG CTC TTC CTT GTC GCT GTT GCT ACG CGT GTC 51
816
817 CTG TCC CAG GTA CAA CTG CAG CAG CCT GGG GCT GAG CTG GTG AAG CCT GGG102
818
819 GCC TCA GTG AAG ATG TCC TGC AAG GCT TCT GGC TAC ACA TTT ACC AGT TAC153
820
821 AAT ATG CAC TGG GTA AAA CAG ACA CCT GGT CGG GGC CTG GAA TGG ATT GGA 204
822
823 GCT ATT TAT CCC GGA AAT GGT GAT ACT TCC TAC AAT CAG AAG TTC AAA GGC255
824
825 AAG GCC ACA TTG ACT GCA GAC AAA TCC TCC AGC ACA GCC TAC ATG CAG CTC306
826
827 AGC AGC CTG ACA TCT GAG GAC TCT GCG GTC TAT TAC TGT GCA AGA TCG ACT357
828
829 TAC TAC GGC GGT GAC TGG TAC TTC AAT GTC TGG GGC GCA GGG ACC ACG GTC408
830 ACC GTC TCT GCA 420
831

All of these different
locations need to
be defined as an
N.

table
(ix) feature:

space